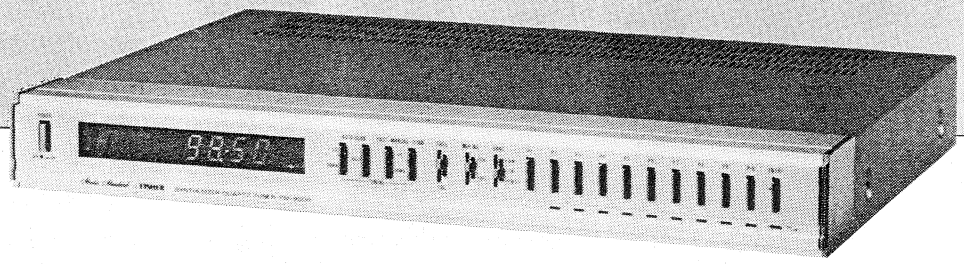
SERVICE MANUAL

FISHER

FM-9000

DIGITAL SYNTHESIZER TUNER



THE FIRST NAME IN HIGH FIDELITY

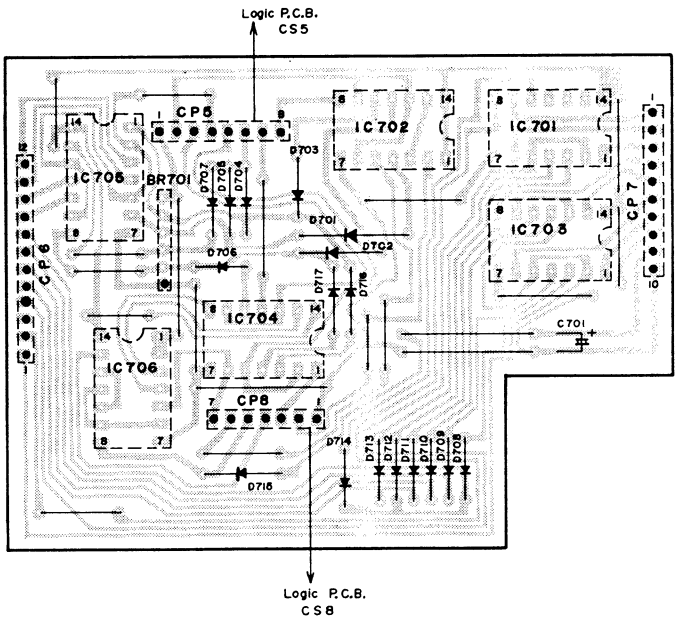
SPECIFICATIONS

FM SECTION	
Frequency range	87.5 — 108 MHz
Sensitivity (75 ohms DIN) Mono Stereo	 0.9 μV (10.3 dBf) 35 μV (42 dBf)
Limiting Sensitivity (75 ohms)	0.8 μV (9.3 dBf)
Muting Level (75 ohms)	5.0 μV
Signal to Noise ratio Mono Stereo	IHF/DIN (weighted r.m.s) 70/64 dB 65/60 dB
T.H.D. Mono Stereo	 0.2 % 0.3 %
Frequency Response	20 — 15 KHz, ±0.5 dB
MPX Channel Separation (1 kHz)	44 dB
Selectivity (±300 kHz)	70 dB
IF Bandwidth (−6 dB)	160 kHz

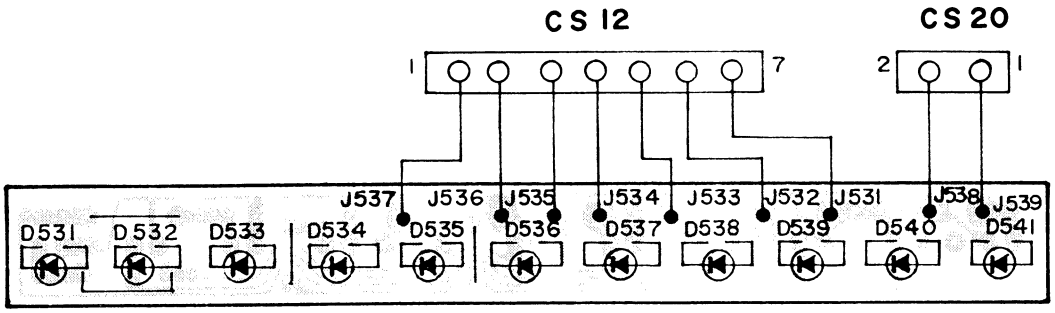
Capture Ratio	1.5 dB
AM Supression	50 dB
IF Rejection	100 dB
Image Rejection	80 dB
AM SECTION (Measured : IEC dummy antenna)	
Frequency Range	530 — 1605 kHz
Sensitivity (DIN) S/N 26 dB	40 dB μV (100 μV)
Signal to Noise Ratio (DIN) at 74 dBμV (5 mV)	45 dB
T.H.D.	0.6 %
Frequency Response (−3 dB)	(100 Hz—2.2 kHz)
IF Bandwidth	8 kHz
IF Rejection	80 dB
Image Rejection	70 dB

WIRING DIAGRAM

SUB LOGIC P.C.B. Bottom

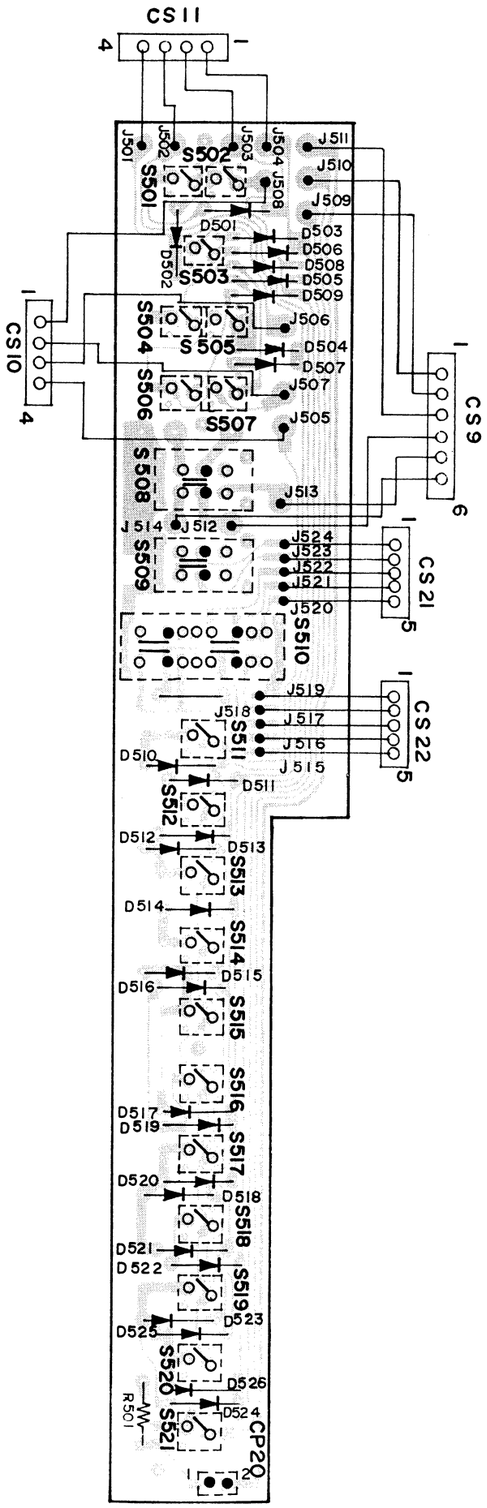


LED P.C.B. Bottom

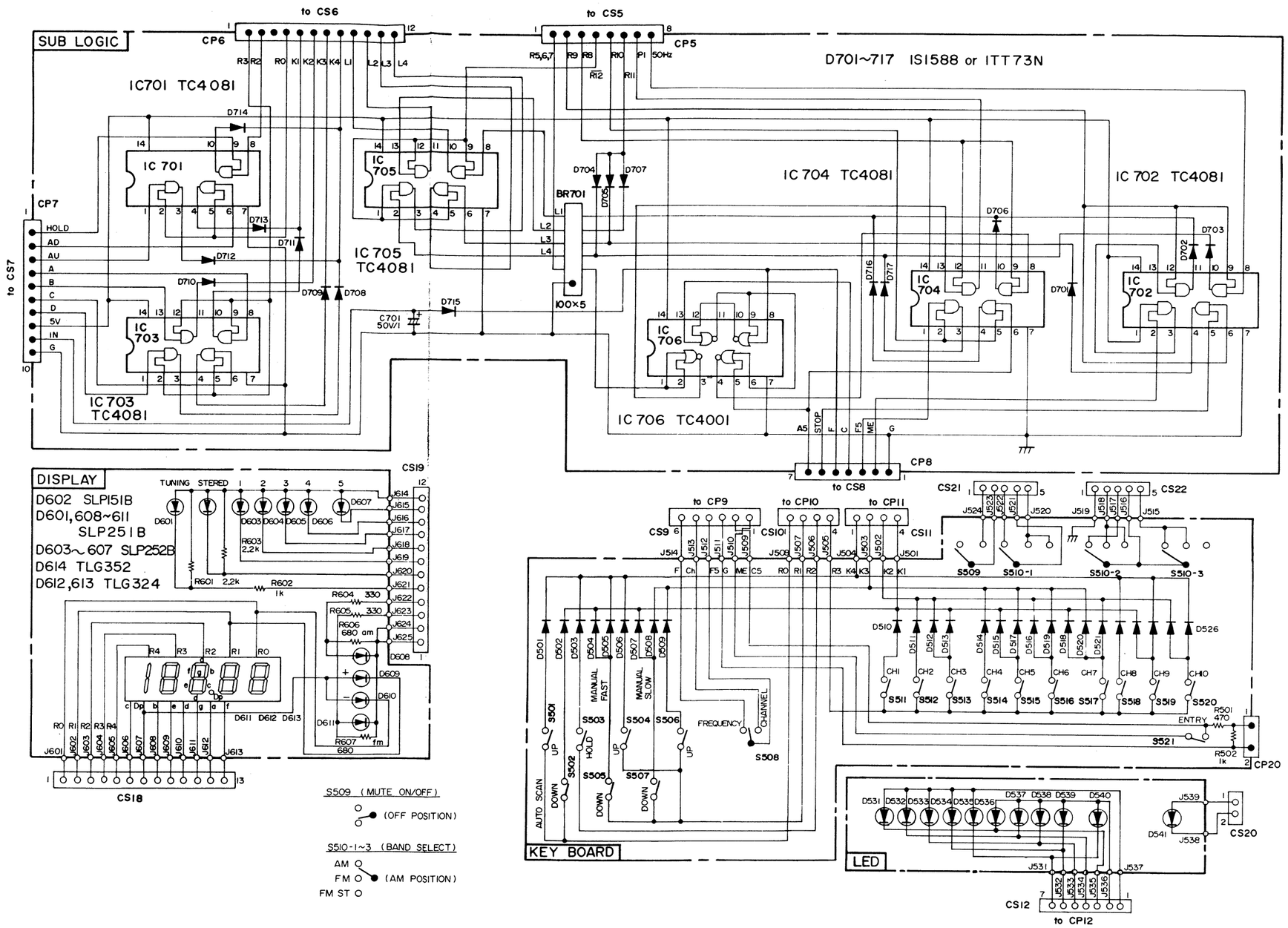


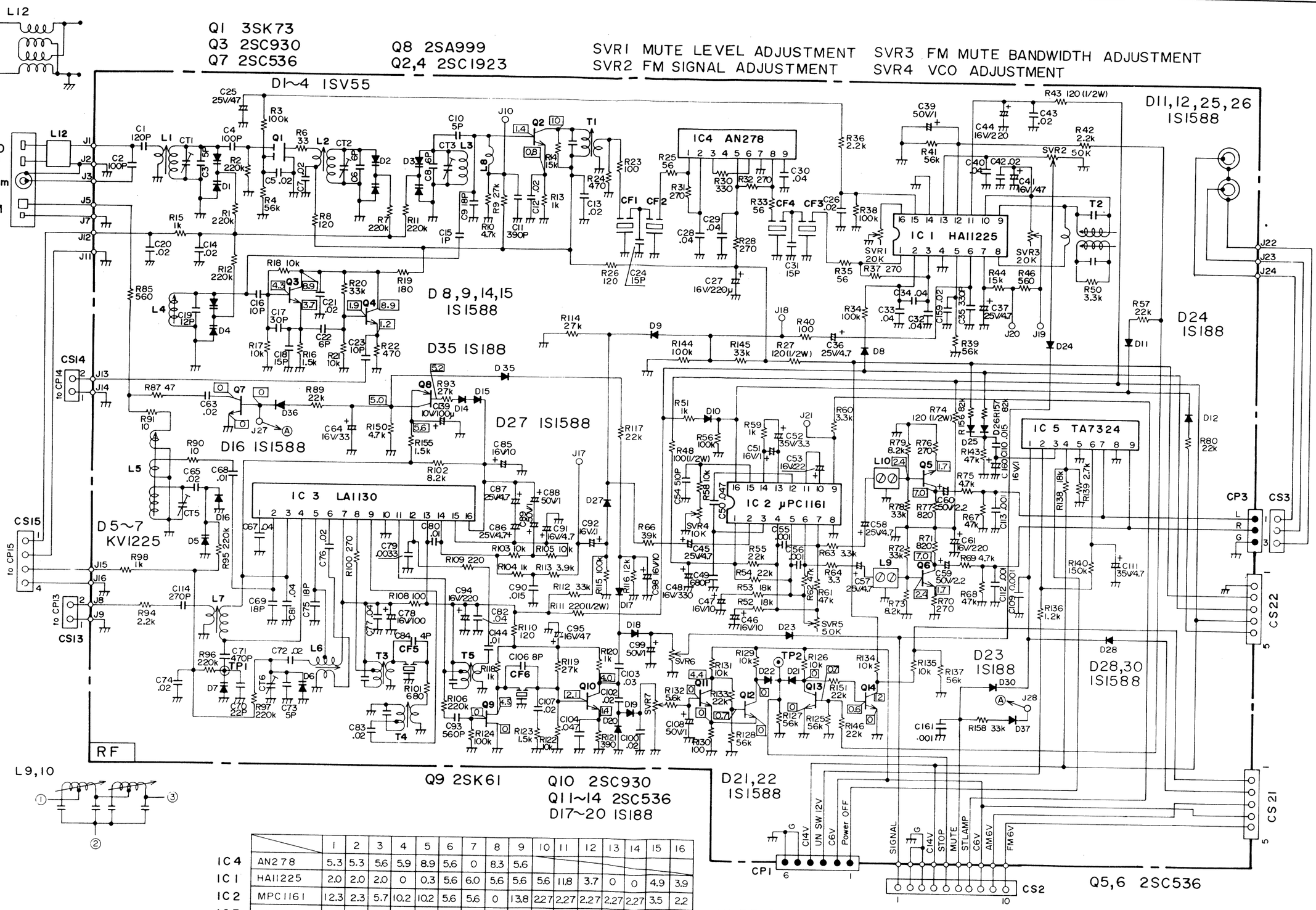
WIRING DIAGRAM

KEYBOARD P.C.B. Bottom



SCHEMATIC DIAGRAM

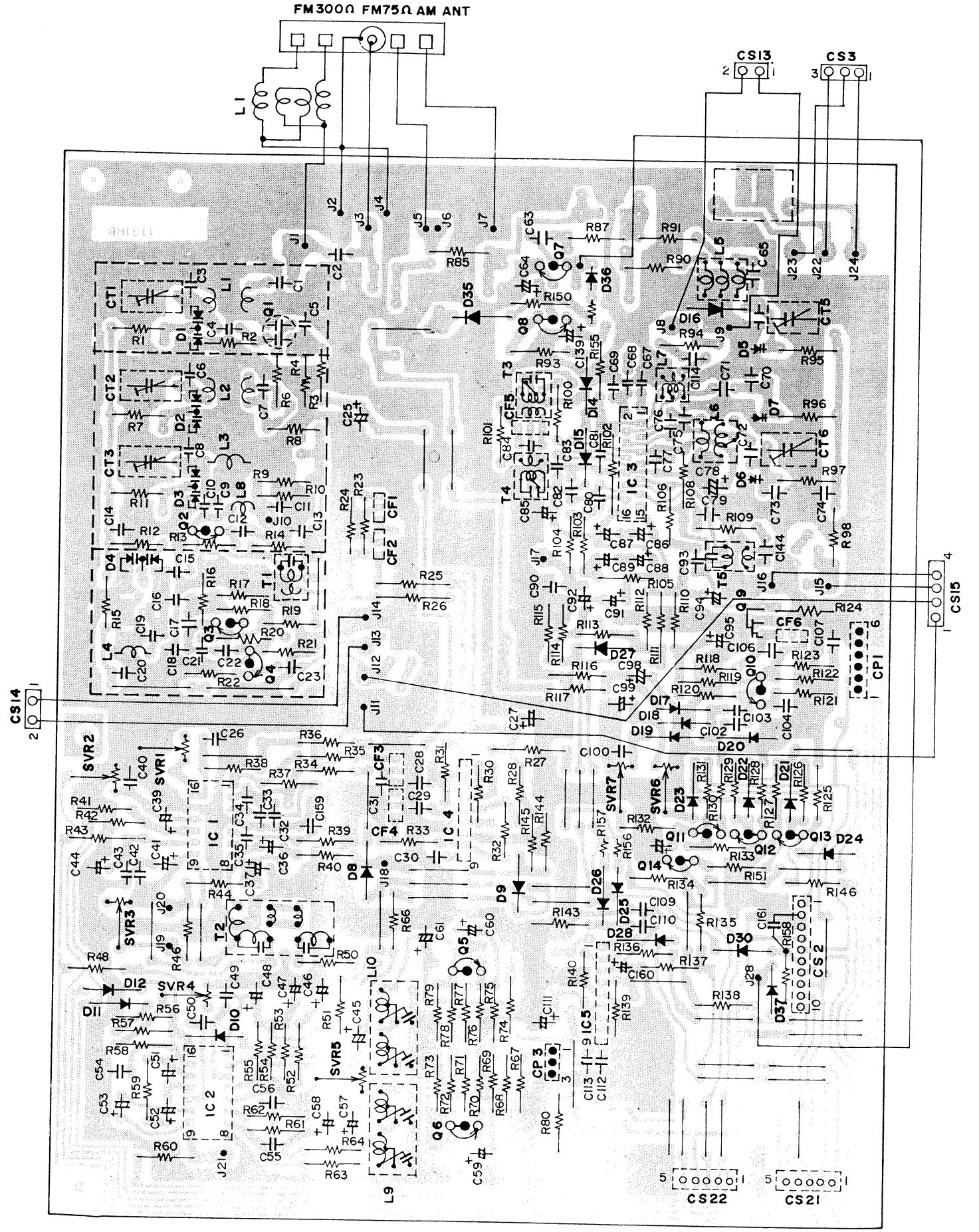




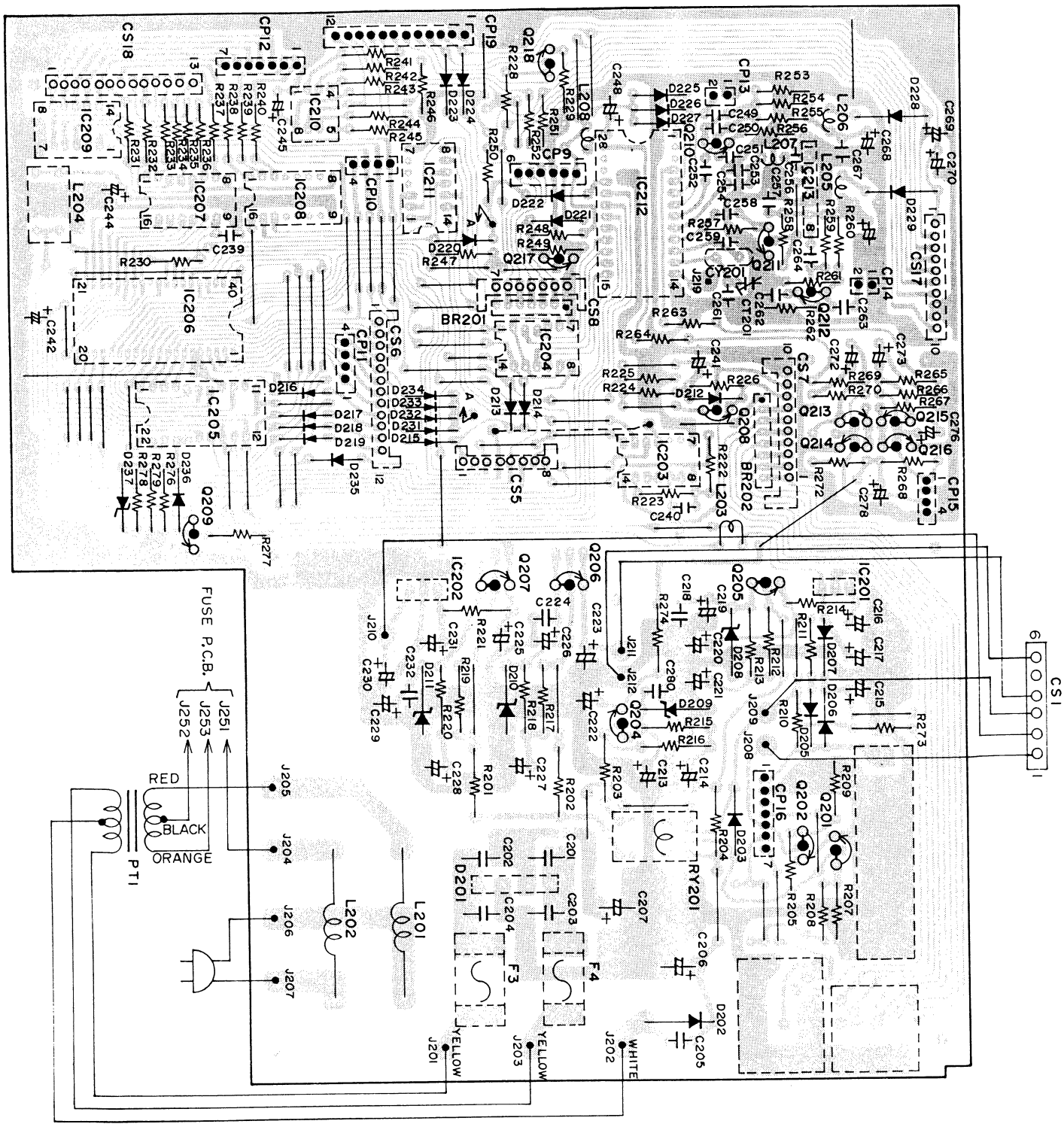
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC4 AN278	5.3	5.3	5.6	5.9	8.9	5.6	0	8.3	5.6							
IC1 HA11225	2.0	2.0	2.0	0	0.3	5.6	6.0	5.6	5.6	5.6	11.8	3.7	0	0	4.9	3.9
IC2 MPC1161	12.3	2.3	5.7	10.2	10.2	5.6	5.6	0	13.8	2.27	2.27	2.27	2.27	2.27	3.5	2.2
IC3 LA1130	2.0	2.5	5.7	5.7	8.0	1.9	8.0	7.9	3.9	0	8.7	0.7	8.7	1.9	1.9	5.6
IC5 TA7324	1.1	3.2	1.3	1.4	0	2.6	0	0	0							

WIRING DIAGRAM

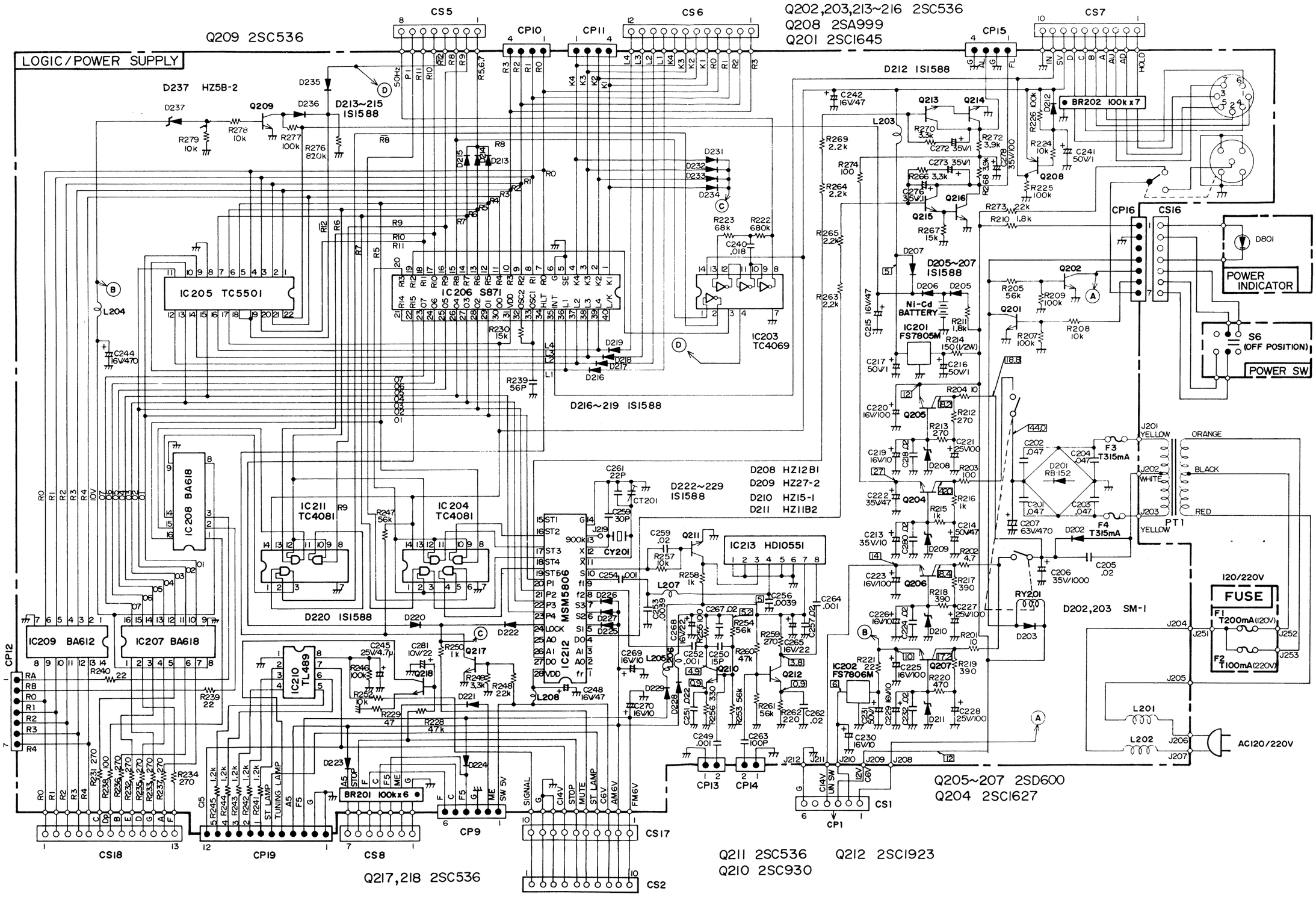
RF P.C.B. Bottom



LOGIC/POWER SUPPLY P.C.B. Bottom

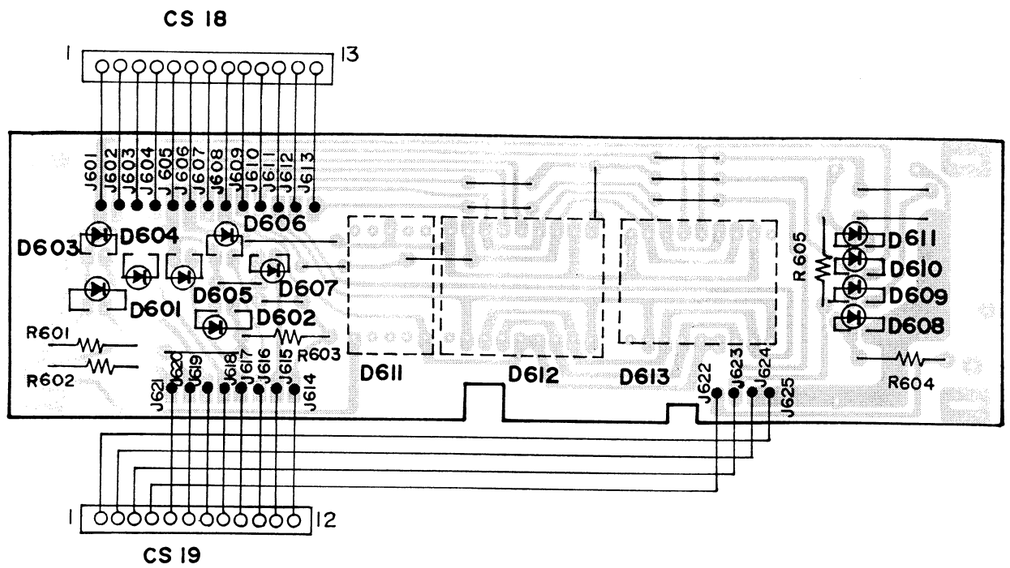


SCHEMATIC DIAGRAM

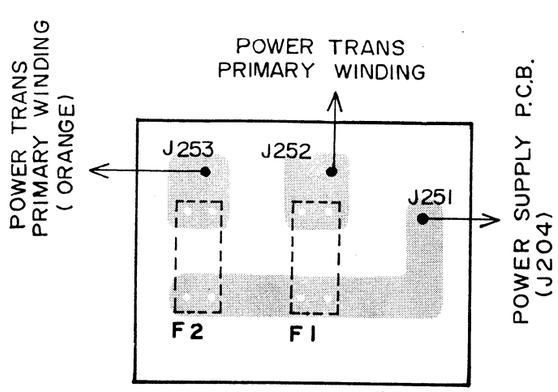


WIRING DIAGRAM

DISPLAY P.C.B. Bottom



FUSE P.C.B.



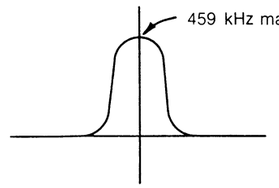
ALIGNMENT PROCEDURES

AM IF Alignment

Step	Alignment Frequency	Test Equipment Connection	Adjustment
1	459 kHz	Connect sweep generator to R96(TP1) and Oscilloscope to J17.	Tune for symmetrical "IF" curve (Fig. 1) T3, T4, T5

ALIGNMENT PROCEDURES

Fig. 1 Symmetrical Responce Curve



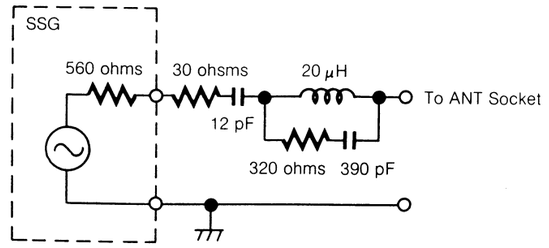


Fig. 2

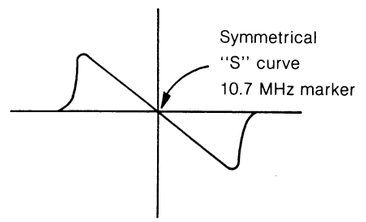


Fig. 3

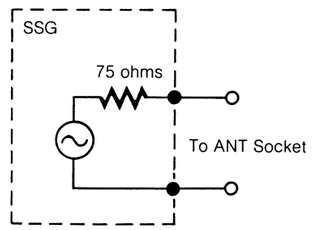


Fig. 4

AM Alignment

Step	Mode	Signal Input	Frequency and Modulation of SSG	Dial Setting of Radio	Test Equipment Connection	Adjustment
1	MW	—	—	1,626 kHz	Connect Volt Meter to J15 and common ground.	Adjust L7 for Voltage to be 25V
2	MW	Thru Dummy ANT (Fig. 2)	603 kHz 30%	600 kHz		Tune L5, L6 for maximum out put
3	MW		1,404 kHz 30%	1,400 kHz		Tune CT5, CT6 for maximum out put

AM Signal Meter Adjustment

Step	Mode	Signal Input	Frequency and Modulation of SSG	Dial Setting of Radio	Signal Meter to be for full scale A
1	MW	Thru Dummy ANT (Fig. 2)	76 dB 999 kHz 30%	999 kHz	SVR 6

AM Stop Signal Level Adjustment

Step	Mode	Signal Input	Frequency and Modulation of SSG	Dial Setting of Radio	Test Equipment Connection	Adjustment
1	MW	Thru Dummy ANT (Fig. 2)	30 dB 999 kHz 30%	999 kHz	Connect Volt Meter to D21(TP2) and Common Ground	Adjust SVR 7 for Voltage to be 5.0V

FM IF Alignment

Step	Alignment Frequency	Test Equipment Connection	Adjustment
1	10.7 MHz	Connect sweep generator to J10 and Oscilloscope to test point J18.	Tune for Symmetrical "S" curve (Fig. 3) T1, T2

ALIGNMENT PROCEDURES

FM RF Alignment

Step	Signal Input	Frequency and Modulation of SSG	Dial setting of Radio	Test Equipment Connection	Adjustment
1	Thru Dummy ANT (Fig. 4)	—	108.15 MHz	Connect Volt Meter to J12 and Common ground	Adjust L4 for Voltage to be 25V
2		90.0 MHz 40 kHz	90.0 MHz	Connect volt Meter to output Terminal	Tune L1, L2, L3 for maximum out put
3		106.0 MHz 40 kHz	106.0 MHz	"	Tune CT1, CT2, CT3 for maximum out put

Repeat Step 2 and 3.

FM Signal Meter Adjustment

Step	Signal Input	Output Frequency and Modulation of SSG	Dial Setting of Radio	Components to be adjusted (Signal Meter to be adjusted for full scale.)
1	Thru Dummy ANT (Fig. 4)	60 dB 98 MHz 40 kHz	98 MHz	SVR 2

FM Muting Band Width Muting Level Adjustment

Step	Signal Input	Output Frequency and Modulation of SSG	Dial Setting of Radio	Components to be Adjusted
1	Thru Dummy ANT (Fig. 4)	60 dB 98 MHz 40 kHz	98 MHz	SVR3 ±35 kHz Muting ON
2		16 dB 98 MHz 40 kHz	98 MHz	SVR1 Muting ON

FM MPX Adjustment (Fig. 5)

Step	Subject	Standard Signal Generator	Stereo Signal Generator		Components to be adjusted	Test point	Indication
			Pilot signal	Main Left, Right and Sub Signal			
1	Adjustment of 19 KHz	—	—	—	SVR 4	J21 (CS-19 pull off)	19.0 kHz
2	Adjustment of Separations	98 MHz 60 dB	10% Mod.	40 kHz with main channel right channel (or left channel)	SVR 5	Left channel out put (or right channel output)	Minimum output

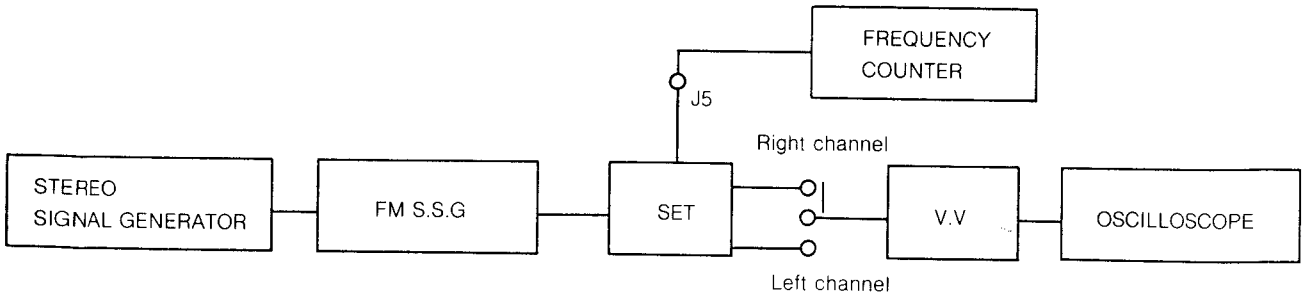
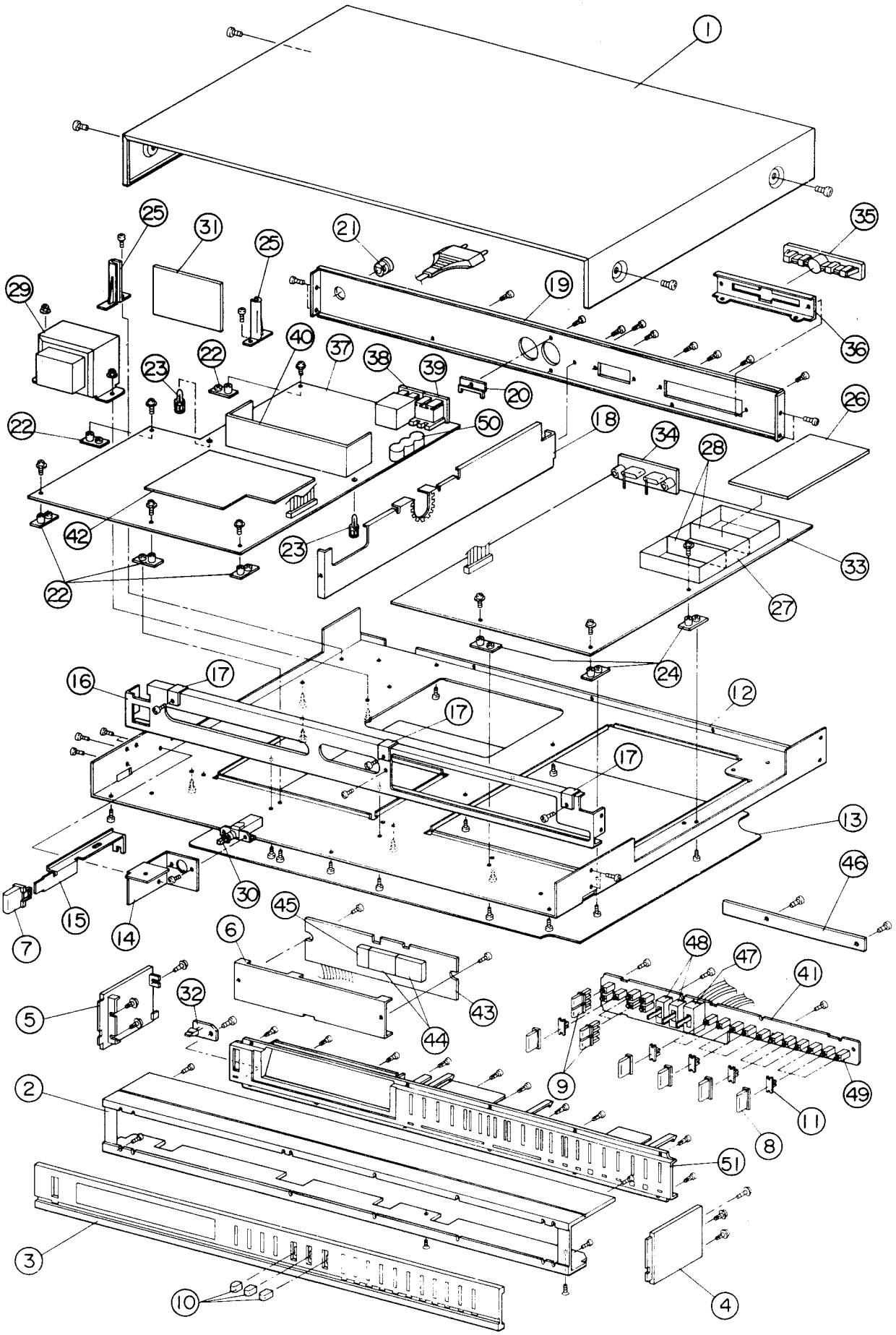


Fig. 5

Crystal Alignment (Logic)

1) Connect frequency counter to J219 and common ground.
2) Adjust trimmer CT201 for frequency to be 900.00 kHz.

EXPLODED VIEW



PARTS LIST

Key No.	Ref.No.	PARTS No.	DESCRIPTION	Q'ty
			PACKAGE PARTS	
		R-4075220	Individual carton	1
		R-4770191	Caution label	1
			Polyethylene bag, 100x240, AC cord	1
		R-4774790	Label, Fuse	1
		R-357503	Polyethylene bag, Set	1
			Polyethylene bag, 160x245, Antenna cord	1
		R-4774609	Instruction book	1
		R-4773695	Guarantee card	1
		R-4774720	Caution label, Fuse	1
			Polyethylene bag, 240x320, Instruction book	1
			Polyethylene bag, 50x50, Caution	1
		R-4172783A	Styro-foam cushion, Right side	1
		R-4172784A	Styro-foam cushion, Left side	1
		R-4075316	Protector, Carton	2
			ACCESSORY PARTS	
		R-S37219	FM antenna	1
		R-S871212	AM antenna assembly	1
		R-S37040-3	Patch cord	1
	F1	R-S17451	Fuse, T200mA	1
			CABINET APPEARANCE PARTS	
1		R-1272532-LA	Top case, silver	1
		R-1272532-MA	Top case, Black	
			Screw, Bind Hd., 4x6 S-tight silver	1
			Screw, Bind Hd., 4x6 S-tight black	
2		R-277727	Rear panel, Silver	1
		R-277727-L	Rear panel, Black	
3		R-A75476	Front panel assembly, Silver	1
		R-A75477	Front panel assembly, Black	
			Tap. Screw, Pan Hd., 2x5	4
4		R-3973921	Fix plastic board, Panel right Silver	1
		R-3973921-L	Fix plastic board, Panel right Black	
5		R-3973932	Fix plastic board, Panel left Silver	1
		R-3973932-L	Fix plastic board, Panel left Black	
			Screw, Pan Hd. with washer, 3x6 B-tight	4
6		R-1272787	Metal bracket, display	1
			Tap. Screw, Oval Hd., 3x8	2
7		R-3973920	Knob, Power Silver	1
		R-3973920-L	Knob, Power, Black	
8		R-3973822	Knob, HOLD/PRESET Silver	12
		R-3973822-L	Knob, HOLD/PRESET Black	
9		R-3973943	Knob, AUTO SCAN/FAST-MANUAL-SLOW, Silver	6
		R-3973943-L	Knob, AUTO SCAN/FAST-MANUAL-SLOW, Black	
10		R-3973954	Knob, FREQ/MUTING/BAND, Silver	3
		R-3973954-L	Knob, FREQ/MUTING/BAND, Black	
11		R-3973940	Fix plastic board, knob	12
51		R-A75713	Chassis assembly, Silver	1
51		R-A75714	Chassis assembly, Black	
			Screw, Pan Hd., 2x8, S-tight	11
			CHASSIS MECHANICAL PARTS	
12		R-A75478	Bottom case assembly	1
			Screw, Flat Hd., 3x6 S-tight	4
13		R-1272803	Bottom cover	1
			Screw, Pan Hd. with washer, 3x6 B-tight	9
14		R-1272582	Metal bracket, Power switch	1
15		R-1272790	Lever, Power switch	1
			Screw, Pan Hd., 3x6 B-tight	2
		R-147047	Special screw, Lever	1
16		R-A75479	Chassis assembly, Front	1
			Screw, Pan Hd., 3x6 B-tight	7
			Screw, Pan Hd., 3x6 B-tight	6
17		R-1272866	Metal bracket, Front chassis	3
			Screw, Pan Hd., 3x6 B-tight	3
		R-377065	Holder, Lead	2
18		R-A75480	Chassis assembly, Center	1
			Screw, Pan Hd., 3x6 B-tight	4
19		R-A75481	Chassis assembly, Rear	1
			Screw, Pan Hd., 3x6 B-tight	6
			Screw, Pan Hd., 3x8 B-tight	2

Key No.	Ref.No.	PARTS No.	DESCRIPTION	Q'ty
20		R-1272561	Metal bracket, DIN terminal	1
21		R-377070	Bushing, AC cord	1
			Screw, Bind Hd., 3x6 B-tight	4
22		R-327491	Fix plastic board, Logic P.C.B.	5
23		R-377099	Fix plastic board, Logic P.C.B.	2
24		R-3973955	Fix plastic board, RF P.C.B.	3
25		R-3970047	Fix plastic board, Fuse P.C.B.	2
			Screw, Pan Hd., 3x6 P-tight	7
			Screw, pan Hd., 3x8 S-tight	2
26		R-1272579	Shield case, RF P.C.B.	1
27		R-1272580	Shield case, RF P.C.B.	1
28		R-1272547	Shield plate, RF P.C.B.	2
			Screw, Pan Hd., 3x6 B-tight	1
			Screw, Pan Hd., 2.6x8 P-tight Key board P.C.B. mtg.	6
			CHASSIS ELECTRICAL PARTS	
29	PT1	R-W77986	Power transformer	1
			Tap. Screw, Pan Hd. with spring washer 3x8	2
			Nut, Hex Hd., M3	2
		R-S37089-1	AC cord	1
30	S6	R-S47391-5	Push switch, Power	1
			Screw, Pan Hd., 3x6	2
	F2	R-S17441	Fuse, T100mA	1
	F3,4	R-S17261	Fuse, T315mA	2
		R-S17024	Fuse, clip	4
	CS1,9	R-S27298-6	Housing, 6P	2
	CS3	R-S27298-3	Housing, 3P	1
	CS10,11,15	R-S27298-4	Housing, 4P	3
	CS12,16	R-S27298-7	Housing, 7P	2
	CS13,14,20	R-S27298-2	Housing, 2P	3
	CS19	R-S27298-12	Housing, 12P	1
		R-247755	Terminal, Housing	57
		R-237196	Terminal	3
	FR1		PC joiner, 6pin x 85mm	1
	FR2		PC joiner, 7pin x 85mm	1
	FR5		PC joiner, 10pin x 85mm	1
50		R-S871242	Ni-Cd battery, 3N100AA	1
		R-247493	Wirewrap terminal	2
31		R-4173038-2	Printed circuit board, Fuse	1
32		R-4173031	Printed circuit board, Power IND	1/4
			SEMICONDUCTORS	
	D801		LED, SLP-151D	1
			RF P.C.B. ASSEMBLY	
33		R-A75482	Circuit board assembly	1
	L1,2	R-W9725	VHF coil	2
	L3	R-W9726	VHF coil	1
	L4	R-W9716-1	VHF coil	1
	L5	R-W27113-1	Antenna coil	1
	L6	R-W27140	RF coil	1
	L7	R-W87034	OSC coil	1
	L8	R-W17023	Choke coil	1
	L9,10	R-W17014	LP filter	2
	L12	R-W4718-1	Coil	1
	T1	R-W5T766	IF transformer	1
	T2	R-W5T7024	IF transformer	1
	T3	R-W5T7008	IF transformer	1
	T4	R-W5T7009	IF transformer	1
	T5	R-W5T7027-1		
		R-W5T7027	for If transformer	1
	CT1,2,3	R-C0716	Trimmer	3
	CT5,6	R-C0735	Trimmer	2
	CF1,2,3,4	R-S17332	Ceramic filter	4
	CF5	R-S17437	Ceramic filter, 459 k	1
	CF6	R-S17438	Ceramic filter, 459 k	1
	SVR1,3	R-R110735	Preset resistor, 20 k ohm	2
	SVR2,6,7	R-R110705	Preset resistor, 50 k ohm	3
	SVR4	R-R110724	Preset resistor, 10 k ohm	1
	SVR5	R-R110736	Preset resistor, 250 k ohm	1
34		R-S17452	Terminal board	1

NOTES : 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

ARTS LIST

Key No.	Ref.No.	PARTS No.	DESCRIPTION	Q'ty
35		R-S27327	Antenna socket	1
36		R-1272560A	Metal bracket	1
			Screw, Pan Hd., 3x6 B-tight	2
	CP1	R-S27207-6	Plug, 6P	1
	CP3	R-S27207-3	Plug, 3P	1
	CS2	R-S27440-2	Socket, 10P	1
	CS21,22	R-S27440-5	Socket, 5P	2
			SEMICONDUCTORS	
	IC1		Integrated circuit, HA11225	1
	IC2		Integrated circuit, μPC1161	1
	IC3		Integrated circuit, LA1130	1
	IC4		Integrated circuit, AN278	1
	IC5		Integrated circuit, TA7324	1
	Q1		FET, 3SK73	1
	Q9		FET, 2SK61	1
	Q2,4		Transistor, 2SC1923	2
	Q3,10		Transistor, 2SC930	2
	Q5,6,7,11,12,13,14		Transistor, 2SC536	7
	Q8		Transistor, 2SA999	1
	D1,2,3,4		Varicap, 1SV55	4
	D5,6,7		Varicap, KV1225 (Y)	1
	D8~16,21,22,25,26,27, 28,30,36,37		Diode, 1S1588 or ITT73N	18
	D17,18,19,20,23,24,35		Diode, 1S188 FM	7
			RESISTORS (Resistors are of carbon type, ±5%, allowance and ±1/4W unless otherwise noted.)	
	R1,2,7,11,12,95,96,97,106		220 k ohm	9
	R3,34,38,56,115,124,144		100 k ohm	7
	R4,39,41,125,127,128,137		56 k ohm	7
	R6		33 ohm	1
	R8,26,109,110		120 ohm	4
	R9,93,114,119		27 k ohm	4
	R10,69,75,150		4.7 k ohm	4
	R13,15,51,59,98,104,118,120		1 k ohm	8
	R14,44		15 k ohm	2
	R16,123,155		1.5 k ohm	3
	R17,18,21,58,103,105, 122,126,129,131,134, 135		10 k ohm	12
	R19		180 ohm	1
	R20,72,78,112,145,158		33 k ohm	6
	R22,24		470 ohm	2
	R23,40,108,130		100 ohm	4
	R26,33,35		56 ohm	3
	R28,31,32,37,70,76,100		270 ohm	7
	R30		330 ohm	1
	R36,42,94		2.2 k ohm	3
	R46,85		560 ohm	2
	R50,60,63,64		3.3 k ohm	4
	R52,53,138		18 k ohm	3
	R54,55,57,80,89,117, 133,146,151		22 k ohm	9
	R61,62,67,68,143		47 k ohm	5
	R66		39 k ohm	1
	R71,77		820 ohm	2
	R73,79,102		8.2 k ohm	3
	R87		47 ohm	1
	R90,91		10 ohm	2
	R101		680 ohm	1
	R113		3.9 k ohm	1
	R116		12 k ohm	1
	R121		390 ohm	1
	R132		5.6 k ohm	1
	R136		1.2 k ohm	1
	R139		2.7 k ohm	1
	R140		150 k ohm	1
	R156,157		82 k ohm	2
	R27,43,74		Solid, 120 ohm, ±10%, 1/2W	3
	R48		Solid, 100 ohm, ±10%, 1/2W	1
	R111		Solid, 220 ohm, ±10%, 1/2W	1

Key No.	Ref.No.	PARTS No.	DESCRIPTION	Q'ty
			CAPACITORS	
	C50		Mylar, 0.047μF, ±10%, 50V	1
	C55,56,112,113,161		Mylar, 0.001μF, ±10%, 50V	5
	C68,80,144		Mylar, 0.01μF, ±10%, 50V	3
	C79		Mylar, 0.033μF, ±10%, 50V	1
	C90,110		Mylar, 0.015μF, ±10%, 50V	2
	C104		Mylar, 0.047μF, ±10%. 50V	1
	C54		Styrol, 510pF, ±5%, 50V	1
	C71		Styrol, 470pF, ±5%, 50V	1
	C1		Ceramic, 120pF, ±10%, 50V, YW	1
	C2,4		Ceramic, 100pF, ±10%, 50V, SL	2
	C3,10,73		Ceramic, 5pF, ±0.25pF, 50V, SL	3
	C6		Ceramic, 7pF, ±10%, 50V, SL	1
	C8,22		Ceramic, 6pF, ±10%, 50V, SL	2
	C9,69,75		Ceramic, 18pF, ±10%, 50V, SL	3
	C11		Ceramic, 390pF, ±10%, 50V, YW	1
	C15		Ceramic, 1pF, ±0.25pF, 50V, SL	1
	C16,23		Ceramic, 10pF, ±10%, 50V, SL	2
	C17		Ceramic, 30pF, ±10%, 50V, SL	1
	C18,24,31		Ceramic, 15pF, ±10%, 50V, SL	3
	C19		Ceramic, 12pF, ±10%, 50V, SL	1
	C35		Ceramic, 330pF, ±10%, 50V, YW	1
	C49		Ceramic, 680pF, ±10%, 50V, YW	1
	C70		Ceramic, 22pF, ±10%, 50V, YW	1
	C84		Ceramic, 4pF, ±0.25pF, 50V, SL	1
	C93		Ceramic, 560pF, ±10%, 50V, YW	1
	C106		Ceramic, 8pF, ±10%, 50V, SL	1
	C114		Ceramic, 270pF, ±10%, 50V, YW	1
	C5,7,12,13,14,20,21,26, 43		Ceramic, 0.02 or 0.022μF, +80 −20%, 50V	9
	C28,29,30,32,33,34,40, 42,67,77,81,82		Ceramic, 0.04 or 0.047μF, +80 −20%, 50V	12
	C63,65,72,74,76,83,100, 101,102,103,107,159		Ceramic, 0.02 or 0.022μF, +80 −20%, 50V	12
	C109		Ceramic, 0.001μF, +80 −20%, 50V	1
	C25,36,37,45,57,58,86, 87,91		Electrolytic 4.7μF/25V	9
	C27,44,61,94		Electrolytic 220μF/16V	4
	C39,88,89,99,108		Electrolytic 1μF/50V	5
	C41,95		Electrolytic 47μF/16V	2
	C46,47,85,98		Electrolytic 10μF/16V	4
	C48		Electrolytic 330μF/16V	1
	C51		Electrolytic 1μF/16V	1
	C52		Electrolytic 3.3μF/16V	1
	C53		Electrolytic 0.22μF/16V	1
	C59,60		Electrolytic 2.2μF/50V	2
	C64		Electrolytic 33μF/16V	1
	C78		Electrolytic 100μF/16V	1
	C92,160		Electrolytic 0.1μF/16V	2
	C111		Electrolytic 4.7μF/16V	1
	C139		Electrolytic 100μF/10V	1
			LOGIC P.C.B. ASSEMBLY	
37		R-A75483	Circuit board assembly, Logic	1
	RY201	R-S47588	Relay	1
	L201,202	R-W17004	Choke coil	2
	L203,205, 206,208	R-W1046	Choke coil, 40μH	4
	L204	R-W6758	Choke coil	1
	L207	R-W1750A	Choke coil, 1μH	1
		R-S17024	Fuse clip	4
	CT201	R-C0732	Trimmer	1
	CY201	R-S17409	Crystal oscillator	1
38		R-S27451	DIN socket, 5P, Remote in	1
39		R-S27452	DIN socket, 7P, Remote in	1
	CS5	R-S27365-8	Socket, 8P	1
	CS6	R-S27365-12	Socket, 12P	1
	CS7	R-S27365-10	Socket, 10P	1
	CS8	R-S27365-7	Socket, 7P	1
	CS17	R-S27440-2	Socket, 10P	1
	CS18	R-S27440-4	Socket, 13P	1
	CP9	R-S27207-6	Plug, 6P	1
	CP10,11,15	R-S27207-4	Plug, 4P	3

NOTES : 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

PARTS LIST

Key No.	Ref.No.	PARTS No.	DESCRIPTION	Q'ty
	CP12,16	R-S27207-7	Plug, 7P	2
	CP13,14	R-S27207-2	Plug, 2P	2
	CP19	R-S27207-12	Plug, 12P	1
		R-237196	Terminal	4
40		R-2672757	Heat sink, Transistor	1
			Screw, Pan Hd., 3x8	4
			Nut, Hex Hd., M3	4
			SEMICONDUCTORS	
	IC201		Integrated circuit, FS7805M	1
	IC202		Integrated circuit, FS7806M	1
	IC203		Integrated circuit, TC4069	1
	IC204,211		Integrated circuit, TC4081	2
	IC205		Integrated circuit, TC5501 or TC5017	1
	IC206		LSI, S871	1
	IC207,208		Integrated circuit, BA618	2
	IC209		Integrated circuit, BA612	1
	IC210		integrated circuit, TL489	1
	IC212		LSI, M5806RS	1
	IC213		Integrated circuit, HD10551	1
	Q201		Transistor, 2SC1645	1
	Q202,209,211,213,214, 215,216,217,218		Transistor, 2SC536	9
	Q204		Transistor, 2SC1627	1
	Q205,206,207		Transistor, 2SD600	3
	Q208		Transistor, 2SA999	1
	Q210		Transistor, 2SC930	1
	Q212		Transistor, 2SC1923	1
	D201		Diode, RB-152	1
	D202,203		Diode, SM-1 or 10D1	2
	D205,206,207,212∿229 231∿236		Diode, 1S1588 or ITT73N	27
	D208		Zener diode, HZ12B1	1
	D209		Zener diode, HZ27-2	1
	D210		Zener diode, HZ15-1	1
	D211		Zener diode, HZ11B2	1
	S237		Zener diode, HZ5B-2	1
			RESISTORS (Resistors are of carbon type, ±5% allowance and 1/4W unless otherwise noted.)	
	BR201		Block resistor, 100 k ohm x 6	1
	BR202		Block resistor, 100 k ohm x 7	1
	R205,247,253,254,261		56 k ohm	5
	R207,209,225,226,246, 251,277		100 k ohm	7
	R208,224,252,257,278,279		10 k ohm	6
	R210,211		1.8 k ohm	2
	R212,213,231∿237,259		270 ohm	10
	R215,216,250,258		1 k ohm	7
	R217,218,219		390 ohm	3
	R220		470 ohm	1
	R222		680 k ohm	1
	R223		68 k ohm	1
	R228,260		47 k ohm	2
	R229		47 ohm	1
	R230,267		15 k ohm	2
	R238,255		100 ohm	2
	R239,240		22 ohm	2
	R241,242,243,244,245		1.2 k ohm	5
	R248,273		22 k ohm	2
	R249,266,270		3.3 k ohm	3
	R256		330 ohm	1
	R262		220 ohm	1
	R263,264,265,269		2.2 k ohm	4
	R268,272		3.9 k ohm	2
	R276		820 k ohm	1
	R201		Carbon, 10 ohm, ±5%, 1/2W, ERQ	1
	R202		Carbon, 4.7 ohm, ±5%, 1/2W, ERQ	1
	R203,274		Carbon, 100 ohm, ±2%, 1/4W, ERD	2
	R204		Carbon, 10 ohm, ±2%, 1/4W, ERD	1
	R221		Carbon, 22 ohm, ±2%, 1/4W, ERD	1
	R214		Solid, 150 ohm, ±10%, 1/2W	1
			CAPACITORS	
	C201,202,203,204		Mylar, 0.04 or 0.047μF, ±20%, 100V	4
	C240		Mylar, 0.018μF, ±10%, 50V	1
	C251		Mylar, 0.022μF, ±10%, 50V	1
	C253,256		Mylar, 0.039μF, ±10%, 50V	2
	C205,218,224,232,257, 258,262,267,280		Ceramic, 0.02μF, +80 −20%, 50V	9
	C249,252,254,264		Ceramic, 0.001μF, ±10%, 50V	4
	C239		Ceramic, 56pF, ±10%, 50V, SL	1
	C250		Ceramic, 15pF, ±10%, 50V, SL	1
	C259		Ceramic, 30pF, ±10%, 50V, SL	1
	C261		Ceramic, 22pF, ±10%, 50V, SL	1
	C263		Ceramic, 100pF, ±10%, 50V, YW	1
	C206		Electrolytic 1000μF/35V	1
	C207		Electrolytic 470μF/63V	1
	C213		Electrolytic 10μF/35V	1
	C214		Electrolytic 47μF/50V	1
	C215,242,248		Electrolytic 47μF/16V	3
	C216,217,231,241		Electrolytic 1μF/50V	4
	C219,226,229,230,269,270		Electrolytic 10μF/16V	6
	C220,223,225		Electrolytic 100μF/16V	3
	C221,227,228		Electrolytic 100μF/25V	3
	C222		Electrolytic 47μF/35V	1
	C244		Electrolytic 470μF/16V	1
	C245		Electrolytic 4.7μF/25V	1
	C265,268		Electrolytic 22μF/16V	2
	C272,273		Electrolytic 1μF/35V	2
	C276		Electrolytic 0.1μF/35V	1
	C278		Electrolytic 100μF/35V	1
	C281		Electrolytic 22μF/10V	1
			KEY BOARD P.C.B. ASSEMBLY	
41		R-A75484	Circuit board assembly, Key board	1
47	S510-1,2,3	R-S47635-1	Slide switch, Band select	1
48	S508,509	R-S47634-1	Slide switch, CH/FREQ MUTING	2
49	S501∿507, 511∿521	R-S47616-2	Key switch	18
	CP20	R-S27271-2	Plug, 2P	1
	FR3,4		PC joiner, 5 pin x 70mm	2
			SEMICONDUCTORS	
	D501∿526		Diode, 1S1588 or ITT73N	26
			RESISTORS	
	R501		Carbon, 470 ohm, ±5%, 1/4W	1
	R502		Carbon, 1 k ohm, ±5%, 1/4W	1
			SUB LOGIC P.C.B. ASSEMBLY	
42		R-A75485	Circuit board assembly, Sub logic	1
	CP5	R-S27207-8	Plug, 8P	1
	CP6	R-S27207-12	Plug, 12P	1
	CP7	R-S27207-10	Plug, 10P	1
	CP8	R-S27207-7	Plug, 7P	1
			SEMICONDUCTORS	
	IC701,702,703,704,705		Integrated circuit, TC4081	5
	IC706		Integrated circuit, TC4001	1
	D701∿717		Diode, 1S1588 or ITT73N	17
			RESISTORS	
	BR701		Block resistor, 100 k ohm x 5	1
			CAPACITORS	
	C701		Electrolytic 1μF/50V	1
			DISPLAY P.C.B. ASSEMBLY	
43		R-A75486	Circuit board assembly, Display	1
			SEMICONDUCTORS	
44	D612,613		Multi LED, TLG-324	2
45	D614		Multi LED, TLG-352	1
	D601,608,609,610,611		LED, SLP-251B	5
	D602		LED, SLP-151B	1
	D603,604,605,606,607		LED, SLP-252B	1
			RESISTORS	
	R601,603		Carbon, 2.2 k ohm, ±5%, 1/4W	2
	R602		Carbon, 1 k ohm, ±5%, 1/4W	1
	R604,605		Carbon, 330 ohm, ±5%, 1/4W	2
	R606,607		Carbon, 680 ohm, ±5%, 1/4W	2
			LED P.C.B. ASSEMBLY	
46		R-A75487	Circuit board assembly, LED	1
			SEMICONDUCTORS	
	D531∿540		LED, SLP-251D	10
	D541		LED, SLP-151D	1

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